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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TAL DRORY, AMIR BAR-OR,  
NITZAN PELEG, and DAVID KONOPNICKI

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Appeal 2009-005871<sup>1</sup>  
Application 10/814,579  
Technology Center 2100

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Before JOSEPH L. DIXON, LANCE LEONARD BARRY, and  
JEAN R. HOMERE, *Administrative Patent Judges*.

HOMERE, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>2</sup>

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<sup>1</sup> Filed March 31, 2004. The real party in interest is Hewlett Packard Development Co. (App. Br. 1).

<sup>2</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

## I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) (2002) from the final rejection of claims 1 through 23. (App. Br. 2). We have jurisdiction under 35 U.S.C. § 6(b) (2008).

We affirm in part.

### *Appellants' Invention*

Appellants invented a method and system for querying spatial data in a database. (Title.) As depicted in Figure 2 of Appellants' drawings, the system (86) includes a database management system (DBMS 88) having a plurality of operators (94-102). (Spec. 7-8, para. [0018].) The DBMS (88) is coupled to a base table (84) having a plurality of spatial objects indexed as a plurality of data entries in a separate index table (90). (*Id.*) As further shown in Figure 4 of Appellants' drawings, upon receiving in a query window (144) a query describing a spatial area of interest (e.g. circle, square, etc.), the DBMS (88) uses the decompose window operator (98) to convert the query window (144) into a plurality of values for each of which a begin and end scan range values including a stop condition are created. (Spec. 14, para. [0029, 0036-0037].) The range values are then compared to the data entries in the index table (90) to detect possible matches, which are subsequently displayed. (*Id.*)

### *Illustrative Claim*

Independent claim 1 further illustrates the invention. The claim reads as follows:

1. A system for performing query operations, the system comprising:

a base table having a plurality of spatial objects;

an index table that comprises a plurality of data entries, the plurality of data entries being associated with the plurality of spatial objects;

a module adapted to perform a query operation on the index table, the module configured to;

convert a query window into a plurality of values;

create a scan range for each of the plurality of values with a begin range value and an end range value from the plurality of values, wherein the scan range includes a stop condition;

scan the plurality of data entries for each of the scan ranges to identify one of the end range value and the stop condition; and

return a result based upon the plurality of data entries that are within the scan range for each of the plurality of values.

*Prior Art Relied Upon*

Shaw	US 6,684,219 B1	Jan. 27, 2004
Wang	US 6,920,446 B1	Jul. 19, 2005

*Rejections on Appeal*

The Examiner rejects the claims on appeal as follows:

1. Claims 1 through 11 and 21 through 23 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

2. Claims 1 through 23 stands rejected under 35 U.S.C. § 103 (a) as being unpatentable over the combination of Wang and Shaw.

*Appellants' Contentions*

First, Appellants contend that each of claims 1 through 11 recites a system including a module adapted to carry out the functions of the claims. According to Appellants, these claims necessitate the use of a computer, and are therefore directed to statutory subject matter. (Reply Br. 4.)

Next, Appellants contend that claims 21 through 23 are directed a functional descriptive material recorded on a computer-readable medium, which encompasses a tangible medium capable of storing data such that a computer can read it. Therefore, Appellants submit that these claims are directed to statutory subject matter. (*Id.* at 5.)

Additionally, Appellants contend that the combination of Wang and Shaw does not teach or suggest a module configured (1) to convert a query window into a plurality of values, and (2) to create for each of the values a scan range having a begin range value, an end range value and a stop condition, as recited in independent claim 1. (App. Br. 7-9, Reply Br. 6-9.) According to Appellants, Shaw's disclosure of matching spatial objects in a database with a desired area of interest appears to teach converting a window into a plurality of objects. However, the converted objects are not a plurality of values that include the scan range as recited in claim 1. (*Id.*) Further, Appellants submit that Wang does not remedy these discrepancies

since it discloses a range pertaining to a merge operation and not to a scan operation as claimed. (*Id.*)

### *Examiner's Findings*

The Examiner finds that the system of claims 1 through 11 is directed to non-statutory subject matter since it merely includes two tables along with a module, which have no tangible properties in Appellants' written description. (Ans. 3 and 4.) Similarly, the Examiner finds that the computer readable medium of claims 21 through 23 is directed to non-statutory subject matter since it purports to non-functional descriptive material that does not fall within any of the four statutory classes of invention. (*Id.*)

Next, the Examiner finds that Shaw's disclosure of allowing a user to open a map interface to a database having a plurality of choices including libraries, coverages (i.e. population, hydrography) teaches Appellants' recitation of converting a query window into a plurality of values. (*Id.* 11.) Further, the Examiner broadly interprets the scan range as a range of values that correlate to the Z values, and consequently finds that Wang's disclosure of a range of values including a block start, a block end, and a termination criterion for a merge operation teaches the scan range as claimed. (*Id.* at 12)

## II. ISSUES

1. Have Appellants shown that the Examiner erred in finding that the system of claim 1 through 11 and 21 through 23 is directed to non-statutory subject matter?

2. Have Appellants shown that the Examiner erred in finding that the combination of Wang and Shaw teaches or suggests a module configured (1) to convert a query window into a plurality of values, and (2) to create for each of the values a scan range having a begin range value, an end range value and a stop condition, as recited in independent claim 1?

### III. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

#### *Appellants' Specification*

1. Appellants' Specification indicates that a module may be a DBMS adapted to create a spatial index table. (Spec. 7, para [0018]).

#### *Wang*

2. Wang discloses a database system that represents spatial data within a defined space. (Abst.) As shown in Figure 1, upon receiving a spatial object, a spatial routine (26) within a parsing engine (24) decompresses the object according to a z ordering algorithm to subsequently store the decomposed object in a table (21) of the database system (10). (Col. 3, ll. 35-44.)

3. Wang discloses iteratively splitting the z-regions of a decomposed object for storage in the database table until a termination criterion is met. (Col. 4, ll. 20-30.)

4. As shown in Figure 3, Wang discloses merging different z-region segments of a spatial object according to specified block ranges

(block start and block end) to thereby represent the object in a defined space.  
(Col. 7, ll. 10-54.)

*Shaw*

5. Shaw discloses a system for managing geospatial data in an object-oriented hierarchical database. (Col. 7, ll. 62-67.) In particular, Shaw discloses that upon a user specifying via a graphical user interface a geographic coverage area, database of choice and a selected library thereof, the system opens a map interface to the database by searching a match with the spatial objects thereof and the specified geographic location entered by the user. The system subsequently displays a list of all library objects within the specified geographical area. (Col. 14, ll. 21-67.)

IV. ANALYSIS

*35 U.S.C. § 101 Rejection*

Independent claim 1 recites in relevant part, a system comprising an index table and a module for performing a query operation thereon. (App. Br. 13, Claims App'x.) As detailed in the Findings of Facts, Appellants' Specification reveals that the system includes *inter alia* a module, which may be a DBMS. (FF. 1.) We find that a DBMS ordinarily involves the use of a computing device for managing data in a database. Consequently, we find that the system entails the use of a processing device programmed or configured to perform the various operations recited in the claim. We thus



find the claimed system to be a machine,<sup>3</sup> which is one of the four statutory classes of subject matter. It follows that Appellants have shown that the Examiner erred in finding that claim 1 and claims 2-11 depending therefrom are directed to non-statutory subject matter.

Claims 21-23 recite a "computer-readable medium" that is broad enough to encompass a transitory, and propagating signal containing information. Further, since these claims are not limited to a tangible medium within one of the four statutory classes of 35 U.S.C. § 101,<sup>4</sup> we agree with the Examiner that claims 21-23 are directed to non-statutory subject matter.

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<sup>3</sup> "A machine is a concrete thing, consisting of parts, or of certain devices and combination of devices. This includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." *Ferguson*, 558 F.3d 1359, 1364 (quoting *In re Nuijten*, 500 F.3d 1346, 1355 (Fed. Cir. 2007), *reh'g denied en banc*, 515 F.3d 1361 (Fed. Cir. 2008), and *cert. denied*, 129 S. Ct. 70 (2008)).

<sup>4</sup> "If a claim covers material not found in any of the four statutory categories, that claim falls outside the plainly expressed scope of § 101 even if the subject matter is otherwise new and useful." *In re Nuijten*, 500 F.3d 1346, 1354 (Fed. Cir. 2007). "A transitory, propagating signal . . . is not a 'process, machine, manufacture, or composition of matter' [under 35 U.S.C. § 101]" and therefore does not constitute patentable subject matter under § 101. *Id.* at 1357. Claims that are so broad that they read on nonstatutory as well as statutory subject matter are unpatentable. *Cf. In re Lintner*, 458 F.2d 1013, 1015 (CCPA 1972) ("Claims which are broad enough to read on obvious subject matter are unpatentable even though they also read on nonobvious subject matter."). This is now USPTO policy. *See Subject Matter Eligibility of Computer Readable Media*, 1351 Off. Gaz. Pat. Office 212 (Feb. 23, 2010).

*35 U.S.C. § 103 Rejection*

Independent claim 1 requires, in relevant parts, a module configured (1) to convert a query window into a plurality of values, and (2) to create for each of the values a scan range having a begin range value, an end range value and a stop condition. (App. Br. 13, Claims App'x.)

It is undisputed that Shaw's disclosure of allowing a user to input in a graphical user interface geographical coordinates indicating a location to thereby retrieve corresponding spatial data from a selected library in an object-oriented geographical database (FF. 5) teaches or suggests a converting a query window to a plurality of data objects. (Ans. 11, Reply Br. 7.) Further, we agree with the Examiner that the spatial data retrieved from the database will similarly include for each data point a set of coordinates that identify a location.

As set forth in the Findings of Fact section, Wang discloses using a z-ordering algorithm to decompose an input object into z-region segments that are stored in an object database (FF2), and iteratively splitting the z-region segments into sub-segments until a termination condition is met. (FF. 2, 3.) Wang further discloses merging the z-region segments according to designated range values including begin and end coordinates of an object to thereby graphically represent the object. (FF. 4.) We find that the Wang-Shaw combination, at best, teaches or suggests merging specified ranges (begin range and end range) of coordinate values of an object entered by a user in a query interface to graphically represent the object. In other words, we find that one of ordinary skill would have readily appreciated that upon

converting Shaw's query window into a set of data values that identify an object, Wang's range values could be used to graphically represent the different data values or coordinates of Shaw's identified object. However, while Wang's range of values are used as part of a merge operation that puts the specified coordinates together to graphically reconstruct the object, Wang's stop condition is used as part of a decompose operation that iteratively splits the z-region coordinates of the object into sub-coordinates until the specified condition occurs. While it is possible to use the stop condition of the decompose operation in conjunction with the specified ranges as part of the merge operation to graphically represent the object, we find insufficient rationale on the record before us that would justify such a modification. Simply put, Wang's merge operation uses the range of values as part of merging the object coordinates, whereas the stop condition is used as part of decomposing the object coordinates. To arbitrarily pick a condition from Wang's decompose operation, and somehow incorporate it into the reverse operation of merging the coordinates to graphically represent an object would require us to stretch the disclosure of Wang beyond reasonable limits. We therefore decline the Examiner's invitation to do so. Since Appellants have shown at least one error in the Examiner's rejection of claim 1, we find that Appellants have shown that the Examiner erred in concluding that the combination of Wang and Shaw renders claim 1 unpatentable.

Since claims 2-23 recite the limitations of claim 1 discussed above, we conclude for aforementioned reasons that Appellants have also shown error in the Examiner's rejection of those claims.

## V. CONCLUSIONS OF LAW

1. Appellants have established that the Examiner erred in rejecting claim 1-11 as being directed to non-statutory subject matter.
2. Appellants have not established that the Examiner erred in rejecting claim 20-23 as being directed to non-statutory subject matter.
3. Appellants have established that the Examiner erred in rejecting claims 1-23 as unpatentable over the combination of Wang and Shaw.

## VI. DECISION

1. We affirm the Examiner's rejection that claims 20-23 as being directed to non-statutory subject matter under 35 U.S.C. § 101.
2. We reverse the Examiner's rejection that claims 1-11 as being directed to non-statutory subject matter under 35 U.S.C. § 101.
3. We reverse the Examiner's rejection that claims 1-23 as being unpatentable over the combination of Wang and Shaw under 35 U.S.C. § 103(a).

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Application 10/814,579

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

Vsh

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